CAIT
Center for Advanced Infrastructure & Transportation
Rutgers, The State University of New Jersey

NJDOT Bureau of Research
QUARTERLY PROGRESS REPORT

Project Title:	Use of Windows-based PDAs for Paperless Operation of Emergency Management Team
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Stan Worosz; John Gahwyler
TASK ORDER NUMBER/Study Number: Task Order No. 138/4-29091	PRINCIPAL INVESTIGATOR: Dr. Trefor Williams/Dr. Izzat Bakhadyrov/Joe Orth
Project Starting Date: 12/15/2003 **Original** Project Ending Date: 12/15/2004 (pending correction) **Modified Completion Date:** 8/15/2006	Period Covered: 3rd Quarter 2005

YEAR 1 (ESP South)

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
1. Technology Review	10		100	10
2. Specifications				
2.01 Business Requirements	10		100	10
2.02 Functional Requirements	5		100	5
2.03 Design Specifications	5		100	5
3. Coding and Development	30	10	100	30
4. Debugging	10	10	100	10
5. On-Field Testing	10	10	100	10
6. Training	10	50	100	10
7 Deployment	10	90	100	10
TOTAL	100%			100%

YEAR 2 (ESP) North & South

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
1. Technology Review	6.5	0	80	5.9
2. Specifications				
2.01 Business Requirements	6.5	50	100	6.5
2.02 Functional Requirements	5	50	100	5
2.03 Design Specifications	5	100	100	5
3. Coding and Development	21	25	25	5.2
4. Debugging	6	25	25	1.5
5. On-Field Testing	6			0
6. Training	4.5			0
7. Deployment	6			0
8. Observation & Support	33.5	18	36	12.1
TOTAL	100%			41.2%

Project Objectives: To research and develop a paperless data collection system for New Jersey Traffic Operations North's Emergency Service Program and provide application software to transfer field collected incident data to the central database of New Jersey DOT Operations. To modify the existing system for ESP South to incorporate any new features provided to ESP North, making both systems identical.

Project Abstract: The New Jersey Department of Transportation (NJDOT) Operations has an immediate need for efficient paperless case data entry solutions for their Emergency Service Providers (ESP's) personnel. The ESP personnel patrol designated areas throughout the State for the purpose of performing emergency services for motorists encountering minor and major accidents or incidents. At each accident scene or incident, a case description form is filled out by the ESP team, which includes data on motorist vital information, road conditions, etc. Currently, the form that is used by the ESP North team is paper-based and is submitted at the end of the work shift. The data entry operator then enters this information into the central database, where the information is collected for further analysis. The use of paper forms creates an unnecessary workload for database operators. Also, this substantial number of forms (about 400/day) exceeds the data entry capabilities of the departmental database operators, thus creating significant backlogs and delays.

This project will be divided into four main stages:

I. Environment and Technology Research. At this stage, NJDOT Operations North ESP structures (organizational, geographical, information, etc.) will be studied along with the survey of current state-of-the art in PDA technology. The data and experience from Year 1 will be fully employed at this stage: decisions will be made based on investigation of ESP North needs, technology review done for ESP South, updated technology review and observations of working ESP South data collection system.

II. Development. At this stage, PDA software and Master Database will be modified based on results of Stage I.

III. Deployment and Training. Upon completion of Stage II, ESP North incident reporting will be migrated to the new PDA-based paperless system. Training will be provided to ESP team members. Optionally, training will be provided to designated personnel who are responsible for the maintenance and troubleshooting of the PDA-based system, as it interfaces with the central server.

IV. Observation and Support. Throughout the course of the project, both ESP South and ESP North systems will be under observation. The emerging technical issues will be investigated and addressed as they come up. Additionally, research will be conducted on further improvements of the system: resolving bottlenecks, integration with GPS/GIS, etc.

Development of this hardware/software solution will utilize Windows-based PDAs to enter and store ESP incident forms in an electronic format. This will dramatically reduce the workload for database operators and provide a paperless operation for ESP personnel. This system would include the capability of easy submission of forms directly or indirectly into the central database, thus increasing the efficiency of the Division and eliminating the manual entry of information into the central database.

1. Progress this quarter by task:

2.01 Attended joint meeting of Crew Supervisors (ESP North & ESP South) to discuss proposed changes in the database and the PDA entry screens
2.02 Used information captured for 2.01 to complete work on Functional Requirements
2.03 Completed Design Specifications & conducted review with ESP North
8.0 Collected and arranged for repair of damaged PDAs; provided hardware and software support to ESP South team

2. Proposed activities for next quarter by task:

1.0 Continue with technology review.
3.0 Begin coding & development
4.0 Begin debugging
8.0 Continue support for ESP South

3. List of deliverables provided in this quarter by task (product date):

2.03 Delivered User and Software Requirements documents to ESP North & South (August, 2005)
8.0 Delivered repaired PDAs to ESP South (July, 2005); provided support to ESP South throughout the quarter .

4. Progress on Implementation and Training Activities: Not at implementation.

5. Problems/Proposed Solutions: Funding for Year 2 not yet approved. This has delayed purchase of equipment for testing (ESP North) and purchase of adapters to prevent damage to existing PDAs (ESP South). Completion of Item 2 (Proposed Activities for Next Quarter) is dependent upon receipt of the funding. Continuing PDA repairs and investigator's salary have resulted in expenditures of $33,313 over the original budget. Without funding, the target delivery date is in jeopardy. Mike Pilsbury and John Gahwyler have been informed. If actual cutover to PDA recording of stop data cannot occur on January 1, 2006, it is still possible to have the new data base in place. Manual entries will need to be made. The team is aware of this option.

Total Project Budget	$98,395
Modified Contract Amount:	
Total Project Expenditure to date	$98,395
% of Total Project Budget Expended	100%

* These are approximate expended amounts for the project; these estimates are for reference only and should not be used for official accounting purposes. For a more accurate project accounting please review the quarterly invoice for this project.